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Rhodora

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VERBASCUM PHLOMOIDES (tall, in center), V. THAPSUS (lower, at right) and ERIGERON CANANADENSIS (left)

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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 49. March, 1947. No. 579.

THE GROUP OF ELEOCHARIS PALUSTRIS IN NORTH AMERICA

H. K. Svenson

Key to the E. palustris Group in North America

a. Basal scales of spikelet solitary and spathiform, completely encircling the base of the spikelet....b.
  b. Achenes prominently reticulate-pitted....c.
    c. Tubercle ovoid, nearly equalling to larger than the achene; spikelets castaneous to purplish. Sea coasts, Alaska to northern Quebec.....*E. kamtschatica*
    c. Tubercle pyramidal, much smaller than the achene; spikelets castaneous. Near the coast, Massachusetts to Louisiana; Cuba.....*E. fallax*
  b. Achenes smooth to faintly reticulate....d.
    d. Culms elongate-filiform, spikelets 30–40-flowered with obtuse scales; tubercle conic, only 0.2–0.45 mm. wide at base. Western New England to margin of Great Plains.....*E. calva*
    d. Culms usually thicker, frequently inflated or rigidly flattened....e.
      e. Spikelets few-flowered, the 5–30 scales usually lustrous purple; tubercle conic, only 0.2–0.4 mm. wide at base. Sea coasts, Hudson Bay to Virginia.....*E. halophila*
      e. Spikelets frequently many-flowered, scales straminеous to purplish; tubercles conic to lanceolate. Western North America.....*E. macrostachya*
a. Basal scales of spikelet usually 2 or 3 below the thinner fertile scales, the lowest not encircling the base of the spikelet....f.
  f. Tubercles depressed-deltoid, scales acuminate, and culms wiry in southern part of the range; the entire plant becoming soft with elongate tubercles northward. Newfoundland to Alabama, west to the Mississippi River.....*E. Smallii*
  f. Tubercles depressed-deltoid to lanceolate; culms variable. Western North America.....*E. macrostachya*

Note: *E. palustris* of recent authors (as to American plants) is here included under *E. Smallii* and *E. macrostachya*.

E. PALUSTRIS. The standard account of this species has been that of Lindberg, Acta Soc. Fauna et Flora Fennica **23,** no. 7: 16. 1902, in which three species were segregated in northern Europe, essentially as follows:

1. Achene obovate, the conic tubercle sharply differentiated from the achene and higher than broad. . *Scirpus* (*Heleocharis*) *eupaluster.*
2. Achene light brown, rounded, the thickened tubercle almost sessile (i. e. slightly confluent), tubercle broader than high. *S.* (*Heleocharis*) *mamillatus.*
3. Spikelets uniglumate, achene dark brown, obviously punctate, the thickened tubercle broader than high *S.* (*Heleocharis*) *uniglumis.*

As pointed out by me in RHODORA **41:** 57. 1939, *Eleocharis palustris* in northern Europe is frequently intermingled with uniglumate plants without other differences. The specimen of *E. palustris* in the Linnaean Herbarium is *E. mamillata* Lindberg, and so annotated by him. As to the ribbonlike and terete (at least in dried material) culms differentiating *E. mamillata* and *E. palustris* respectively, I can see in this feature only environmental influence. The achenes of the *E. palustris* group in northern Europe are more coarsely cellular-reticulate and the tubercle broader at the base, with a tendency to be less distinct from the body of the achene than in North American material. From these points of view I think the species of Europe can be maintained as distinct from American representatives of the group. *E. uniglumis* is, I believe, only an ecological variant in brackish water; achenes with similar punctate achene-surface are occasional in fresh-water lakes. And finally, the higher-than-broad tubercle seems to be only an indication of the increasing softness of tissues which one finds in aquatics of high northern latitudes, and which I suspect may be associated with the fast but short growing period. Such soft plants, in the extensive European collection of *E. palustris* which Dr. Samuelsson gave me, seem to be characteristic of the northern parts of Scandinavia. Diminutive representatives collected by Carl Alm in Lule Lappmark are almost identical in appearance with *Fernald, Long, & Fogg* 1339 from Bay of Islands, Newfoundland, though the tubercle is subulate in much of the Newfoundland material. These northern plants seem to me to be modifications, with less rigid tissues, of the southerly plants—in Europe of broad-tubercled *E. palustris;* in eastern North America of *E. Smallii.*

First of all, I see no value in differentiating as species the ecological variants of northern European *E. palustris*, namely *E. palustris*, *E. mamillata* and *E. uniglumis*. They intergrade freely and the distinctions are of the most academic character. If necessary to distinguish them in the literature, the present designations can be employed or they can be designated informally—it makes little difference. In Europe there are quite evidently additional variations, such as the dwarf plants represented by collections from Rumania, with small achenes and broad tubercles. Perhaps these are connected with the variations of *E. palustris* in western Asia.

To return to North America: the complexities of *E. macrostachya* of western United States have already been discussed by me in Rhodora **41**: 55–59. 1939, and the considerable amount of material which has been submitted to me for identification since that time, has merely strengthened the opinions which I had formed. I believe that this species is comparable with *E. palustris* of Europe in respect to the labile uniglumate condition, and in the frequent darkening of scales where the plant is in contact with maritime conditions. *E. macrostachya* occupies the entire range of western states, extends southward into northern Mexico, and ranges north to 59° (*Raup* 1972) in the region of Great Slave Lake in northern Canada. It reaches eastward to western Minnesota, Ortonville (*Moyer* in 1898, hb. Univ. of Minnesota); Iowa (Palo Alto and Clay Counties); and western Missouri. The boundary of *E. macrostachya* to the northeast is unknown and the chief remaining problem of the *palustris*-group in North America is the relationship of *E. macrostachya* to the contiguous *E. Smallii* of northeastern North America.

I think that the two species are distinct—at least no decision should be made to unite these two recognized representatives of the flora of eastern and western North America until the material can be studied very closely at the points of contact. Fortunately Dr. Ada Hayden has supplied me with good collections from Iowa, which I have mentioned as one of the contact points of the two species.

Eleocharis Smallii Britton was described from the Susquehanna River at Harrisburg, Pennsylvania. The culms were of extraordinary thickness and much wider than the spikelet.

The species was differentiated from the European *E. palustris* in Torreya **3:** 23, figs. 1–2. 1903, and, also by the bulbiform base of the tubercle, in Britton and Brown, Ill. Fl. ed. 2, **1:** 310. 1913, as follows:

Scales pale green to straw-color.....*E. macrostachya*
Scales brown to purple-brown.
Tubercle flattened-conic; spikelet thicker than culm.....*E. palustris*
Tubercle swollen, bulb-like; spikelet not thicker than the culm.....*E. Smallii*

Fernald and Brackett in 1929 recognized *E. Smallii* as a widespread plant, which had slender as well as thickened culms. I would go a step further and include practically all the material now recognized as *E. palustris* in eastern North America, under the name *E. Smallii*. In the southern part of its range, this species is characterized by the bulbiform base of the tubercle which becomes "depressed-deltoid, umbonate or broad-ovate, as broad as or broader than long" (Fernald and Brackett, p. 59). The wiry culms, firm black-bordered sheath-apex, and hardened acuminate scales also distinguish this species from *E. calva*. There seems to be no transition to the uniglumate *E. halophila* of the Atlantic coast. When the zone of the Canadian Forest is reached northward, the texture of *E. Smallii* becomes softer and the tubercle tends to lose its bulbous character, reaching a linear-subulate form in some of the collections at the northern limit of range. These changes are shown in the illustrations of *E. Smallii* and "*E. palustris*", Rhodora pl. 181 and 182. 1929; and especially the photograph, Rhodora pl. 547, where "E. palustris" from Nova Scotia is shown (fig. 21) in its transitional stages. Such material extends to Hudson Bay, where it approaches slender material of the western *E. macrostachya* in its appearance. Whether there is any actual connection with *E. macrostachya* across the Canadian wilderness from Manitoba to Hudson Bay cannot be determined until collections are known from that region. From *E. Smallii*, as well as *E. macrostachya*, typical *E. palustris* of Europe differs in the much coarser style and style-branches, in the generally larger achenes with broader, nearly sessile tubercles, and a decided reticulation of the achene-surface.

It is now of importance to find points at which the rigid form of *E. Smallii* with the bulbiform tubercles gives way to the soft

plant with elongate tubercles and soft scales. That is not so easy, for in Newfoundland both forms are found. *Fernald & Wiegand* 27,520 from St. John Bay is a fine example of the narrow-tubercled form. In this collection the body of the achene is 1.8–2.0 mm. long and 1.0 mm. wide; the tubercles vary from 0.3 x 0.5 mm. to 0.25 x 1.0 mm., i. e. the linear tubercle may be four times as long as wide. *Fernald & Wiegand* 2702 from Ingornachoix Bay shows intermediate tubercles. It has the identical outward appearance and achene-body of *Wiegand & Hotchkiss* 27,521 from St. Barbe Bay in northwestern Newfoundland, a collection which has elongate tubercles. On the diorite table-land of the Blomidon Mts. and in similar places, the form of *E. Smallii* with short tubercles characteristic of the southern part of the range, is abundant.

In Quebec the long-beaked extreme of *E. Smallii* is occasional, such as the following collections: Bic, Rimouski Co. *Fernald & Collins* 922; Little Metis, Matane Co. *Fowler;* Cap Chat, Matane Co. *Fernald & Smith* 25,496; Madeleine Pt., Gaspé Co. *Kelsey & Jordan* 24; Magdalen Islands, *Marie-Victorin & Rolland-Germain* 9352; New Richmond, Bonaventure Co. *Collins & Pease* in 1904.

The fine collections assembled by E. C. Ogden in western and northern Main frequently show tubercles which are very slightly higher than broad. These plants quite evidently represent the beginnings of the transition phase. From Rev. Lepage I have received numerous collections from the east side of Ungava Bay, 52–54° N. Some mature specimens, such as *Dutilly & Lepage* 12,644, are of the narrow-tubercled form; others, such as 12,645, have broad tubercles. Some of these plants are definitely uniglumate, and it is possible, as I mentioned previously, that they may be a continuation of the uniglumate forms of *E. macrostachya,* found along the Pacific coast from Puget Sound northward. Too little mature material is known from the Hudson Bay region and from the Canadian Pacific coast.

Polunin, Journ. Linn. Soc. London **52:** 367. 1943, cites *E. palustris* from southwest Greenland (Kiagtut and Igaliko) approximately 60–61° N., saying "These are *E. uniglumis:* many of the culms exceed 50 cm. in height and 2 mm. in breadth when pressed; seems nearer to *E. palustris.*" Whether these are the European or the American plant I do not know.

E. FALLAX Weatherby, RHODORA **24:** 23. 1922. *E. nervosa* Kuekenthal, Rep. Spec. Nov. **23:** 192. 1926. *E. ambigens* Fernald, RHODORA **37:** 394. 1935. References have been made by me to these plants in RHODORA **41:** 64. 1939, but I had not then the solution to the problem. *E. fallax* was described from a single colony (or plant?) on Cape Cod, Massachusetts: "It has the aspect and entire sheaths of the group of *E. palustris*, but is at once distinguished therefrom by its three-parted styles and bluntly trigonous achenes. It combines some of the characters of *E. capitata* (*E. tenuis*) and *E. arenicola*." *E. ambigens*—the name signifying its relationship to two groups—extends from Massachusetts to Louisiana along the coast. Because of the wrinkled achene-surface, it was very early confused with *E. compressa*. The dark red lucid sheaths are quite characteristic. Dissection of spikelets of the *palustris*-group will disclose occasional 3-parted styles. I have seen them in *E. kamtschatica* (*Lepage & Dutilly* 12,313 from Ungava, and *Anderson* 852 from Alaska); in *E. Smallii* (*Lepage & Dutilly* 12,644 from Ungava); and in *E. palustris* (*Fröding* from Vermland, Sweden). In *E. ambigens* 3-parted styles are relatively more frequent; one or two in each spikelet examined from *Fernald, Griscom & Long* 4568, but approximately 50 per cent in the spikelets of *Smith & Hodgdon* 621, both collections from Virginia.

E. KAMTSCHATICA (C. A. Meyer) Komarov; Fernald & Brackett, RHODORA **37:** 395. 1935. This Asiatic species, with the tubercle often as large as the body of the achene and with the achene-body strongly reticulate-pitted, has been known from Alaska. It now appears on Hudson Bay, and in two localities on the Atlantic Coast, and is represented by the following collections: Hudson Bay, *Burke* (G) (labeled as *E. palustris* var. *Watsoni* by N. L. Britton); east coast of Hudson Bay, Ungava, Quebec, 52–54° N. *Dutilly & Lepage* nos. 13,408, 13,556, 13,356 and (?) 13,408; Paradise River, Labrador, (53° 30′ N.) *Bishop* 101 (G); R. Romaine, north coast of Gulf of St. Lawrence, Quebec, *Marie-Victorin & Rolland-Germain* 20,165 (G). This species has been the basis of some of the reports of *E. uniglumis* in eastern North America; on the other hand, some cited collections such as *Fernald & Wiegand* 2706 from the mountains of Newfoundland are not uniglumate at all, and to my mind are perfectly typical *E. Smallii*.

E. CALVA Torrey. This is a plant with filiform culms, and many-flowered spikelets, predominantly of calcareous areas of northeastern United States. It extends from Quebec and western New England to Virginia and Tennessee, west now to Minnesota where it is abundant; eastern North Dakota (Butte, *Lunell* 789); northeastern Nebraska (*Clements* 2552 from lowlands of Missouri River); northwest Iowa (*Hayden* 8247, Buena Vista Co.); Missouri (Jackson Co., *Bush* 58); and Oklahoma (Ottawa Co., *G. W. Stevens* 2431). All material to the west of this area appears to be the coarser *E. macrostachya*, which is frequently uniglumate.

E. SMALLII Britton. Extends southward to Delaware, West Virginia, and in the Cumberland Mountains to Tennessee (Norris Reservoir, *Hess & Penfound*, July 14, 1938; Dunlap, *Svenson* 10,113) and northern Alabama (Muscle Shoals, *T. F. Hall*, June 21, 1938). To the westward it enters Wisconsin (including *Fassett* 16,739 from Drummond); extends through much of northern Minnesota and reaches western Iowa and Missouri.

E. HALOPHILA This few-flowered uniglumate plant of the Atlantic seacoast extends from Hudson Bay to Virginia.

BROOKLYN BOTANIC GARDEN,
BROOKLYN, N. Y.

VERBASCUM PHLOMOIDES IN IOWA

W. A. ANDERSON

(Plate 1055)

Verbascum phlomoides L. is by far the commonest mullein around Iowa City. It has been here for at least thirty-five years, as shown by herbarium specimens, though published accounts are very recent (1) (2). In an attempt to account for the disparity between descriptions in current manuals (3) and the plant as seen in the field, the writer has been watching colonies of mullein for the past three seasons and has come to the following conclusions:—

The mature form of *Verbascum phlomoides* is a gigantic weed, 1.5 to 2 m. high, shooting from a large winter rosette into flower-

ing condition by about the first of July. The rosette leaves all disappear and stem leaves remaining are all more or less decurrent by long ruffled auricles which clothe the stem from the ground to the inflorescence. These leaves are progressively more acuminate from ground to the inflorescence. The inflorescence consists of a central spike or spike-like raceme with several smaller lateral racemes from the axils of upper leaves. This plant is *V. thapsiforme* in the sense of Hegi (4) not of Murbeck (5).

If the plant is cut early in the summer or even after it has flowered, it sends up one to several sprouts which may be a meter high or less, with a single slender interrupted raceme and sessile or petioled leaves. This is *Verbascum phlomoides* of Hegi 6: 1 p. 14 fig. 5 and other manuals. It makes a good herbarium specimen and is the form best represented in our collection (see Sherff, l. c.). This form is most common in August and September.

The winter rosette forms in late summer. It consists of leaves up to 0.5 m. long and 2 dm. wide with short petioles which are hidden at the base of the rosette. These rosettes may be distinguished from those of *V. Thapsus* by the acute tips and crenate margins of the leaves, as well as the silvery rather than yellowish pubescence.

Murbeck maintains *V. thapsiforme* as a separate species, although he states that it is closely related to *V. phlomoides*.

The accompanying photograph (plate 1055) of *V. phlomoides*, *V. Thapsus* and some *Erigeron canadensis* was taken on the bank of the Iowa River, July 26, 1945. *V. phlomoides* is very ornamental, but in our locality is a more aggressive weed than *V. Thapsus*.

1. Miller, R. C. Proc. Iowa Acad. Sci. **51**: 235 (vol. for 1944) 1946.
2. Anderson, W. A. Proc. Iowa Acad. Sci. **52**: 91 (vol. for 1945) 1946.
3. Sherff, E. E. Rhodora **48**: 97 (1946).
4. Hegi, G. Illustrierte Flora von Mittel-Europa **6**: 1 p. 15 also tab. 234, fig. 3.
5. Murbeck, S. V. Monographie der Gattung Verbascum, Lunds Univ. Arssk. **29**: 2, 1933–1944. (Esp. pp. 25, 44, 46–48, 51–60, 85–90).

The State University of Iowa
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NOTES ON THE COMPOSITAE OF NORTHEASTERN UNITED STATES

IV. SOLIDAGO.

Arthur Cronquist

It has been claimed by Mackenzie (Torreya **28:** 95–99. 1928) that the familiar coastal plain species long known as *Solidago stricta* Ait. (Hort. Kew **3:** 216. 1789) must properly be called *S. petiolata* Mill. (Gard. Dict. ed. 8. 1768), and that two other Miller names, *S. linearia* and *S. obtusifolia*, which appeared in the 6th edition of the Abridged Gardeners' Dictionary (1771) also apply to the same species. The original descriptions of these three Miller species, as they appeared when the plants were first provided with binomials, are here reproduced.

29. Solidago (*Petiolata*) caule paniculato, racemis confertis, foliis inferioribus lineari-lanceolatis petiolatis, caulinis sessilibus glabris. *Woundwort with a panicled stalk, clustered spikes of flowers, the lower leaves linear, spear-shaped on foot-stalks, and those on the stalks smooth, fitting close . . .* The twenty-ninth sort grows naturally at Philadelphia; the lower leaves are smooth, entire, narrow, and spear-shaped; they are three inches and a half long, and half an inch broad, standing on long foot-stalks. The stalks are round, smooth, and rise three feet high; they are garnished with very small smooth leaves which are entire, and fit close to the stalks. The flowers grow in a close panicle at the top of the stalk; they are of a bright yellow colour, and appear in September.

24. Solidago (*Linearia*) caule paniculato, pedunculis erectis, foliis linearibus glabris integerrimis sessilibus. *Golden-rod with a panicled stalk, erect foot-stalks to the flowers, and smooth, narrow, entire leaves . . .* The twenty-fourth sort sends out strong smooth stalks two feet high, garnished with rough spear-shaped leaves, indented on their edges; the upper part of the stalk divides into many slender branches, which are garnished with very small leaves, and are terminated by recurved racemi of bright yellow flowers.

26. Solidago (*Obtusifolia*) caule paniculato, racemis sparsis, pedunculis erectis, foliis inferioribus lanceolatis serratis caulinis obtusis integerrimis sessilibus. *Golden-rod with a panicled stalk, the spikes of flowers thinly disposed, the foot-stalks erect, the lower leaves spear-shaped and sawed, but those on the stalks obtuse, entire, fitting close . . .* The twenty-sixth sort hath purplish stalks which rise three feet high, and are closely garnished with rough spear-shaped leaves, slightly sawed on the edges, ending in acute points. The stalks are terminated by erect racemi of flowers, growing in clusters, of a bright yellow colour.

No specimens of *S. obtusifolia* and *S. linearia* are known to be extant, but these names pretty clearly do not apply to the plant

we know as *S. stricta*, which is glabrous throughout, and has a simple, unbranched stem, with the cauline and generally also the basal leaves entire, and the latter elongate and persistent. The two parts of the description of *S. linearia* are conflicting, but even if we assume, as did Mackenzie, that the second part of the description was misplaced and appeared under the twenty-fifth sort instead of the twenty-fourth, the paniculate stem and especially the sessile leaves effectively preclude *S. linearia* from being the same as *S. stricta*. Under *S. obtusifolia* and *S. petiolata* Miller noted (quite in accordance with *S. stricta*) that the cauline leaves were sessile, but the basal ones conspicuously petiolate. His statement that the leaves of *S. linearia* are sessile must therefore be assumed to apply to all of the leaves, or at least all that are present at flowering time.

The case of *S. petiolata* is not quite so clear. Most of the description is indeed suggestive of *S. stricta*. The basal leaves of the latter are commonly oblanceolate or linear-oblanceolate rather than linear-lanceolate and spear-shaped, but that difference may be merely one of description rather than of actuality. The main sticking point comes in Miller's words "caule paniculato" and "panicled stalk." The stem of *S. stricta* is uniformly simple and unbranched, a character which doubtless suggested the specific epithet to Aiton. Furthermore, the only known purportedly authentic specimen of *S. petiolata* is, according to Mackenzie, *S. odora*, a species which is even more difficult to reconcile with Miller's description. It therefore seems to me that the case for identifying *S. petiolata* Mill. with *S. stricta* Ait. is far from proven, and probably in fact incapable of proof, so that Miller's name is better recommitted to the limbo of nomina dubia. In this connection it may also be noted that *S. petiolata* had been in cultivation, according to Mackenzie, for ten years before the name was published. Those who know the laxity of the breeding habits of *Solidago* will realize that ten years is quite sufficient time for the production of hybrids unidentifiable with any of the wild species.

In the Synoptical Flora, Asa Gray treated *Solidago neglecta* T. & G. and *S. uliginosa* Nutt. as closely related species, and further listed *S. neglecta* var. *linoides* (T. & G.) Gray as a slender

form. The latter is now generally conceded to be the same as *S. uniligulata* (DC.) Porter, a name which, for nomenclatural reasons, must supplant *S. neglecta* if the two are considered conspecific. Gray further noted under *S. neglecta* that "Forms with almost entire leaves and strict panicle too nearly approach *S. uliginosa* Nutt., while some with large and serrate leaves are more like *S. arguta*." It is certainly true that some of the more robust forms of the bog plant *S. uniligulata* approach the upland *S. arguta*, but truly intermediate specimens which cannot satisfactorily be referred one way or the other are few. Between *S. uniligulata* and *S. uliginosa* on the other hand, there is no such clear-cut segregation. Both are marsh and bog plants, and their ranges, while not identical, are very similar. The more robust forms of *S. uniligulata* tend to have broader and more sharply toothed leaves than comparable forms of *S. uliginosa*, but both entities are extremely variable in habit, according to the environment.[1] The sole technical character available to separate these plants of such similar general appearance, habitat, and distribution, is that the branches of the inflorescence of *S. uniligulata* tend to be more or less recurved-secund, while those of *S. uliginosa* are straight and not secund. This is ordinarily a good specific character in *Solidago*, and is commonly used as one of the major key divisions, but such species as *S. missouriensis*, *S. mollis*, and *S. stricta* vary from not at all secund to distinctly so. In attempting to separate *S. uliginosa* from *S. uniligulata* I find not only a large proportion of specimens misdetermined by competent botanists, but also many which might about as well be referred one way as the other. The plants are usually large enough so that only one is mounted on a single sheet, but among the smaller specimens it is not unusual to find both types represented in the same collection, as, for example, in *Porter s. n.*, from Mt. Desert Island, Maine, *Gleason & Gleason 298*, from Cecil Bay, Michigan, and *Gleason Jr. 108*, from Grand Manan Island,

[1] Deam has pointed out in the Flora of Indiana that the most slender plants (*S. uniligulata* proper) are found near the center of the bog, and the most robust ones (*S. neglecta* proper) at the margin, with all intermediate stages in the intervening area, and Dr. R. T. Clausen tells me that his field observations in western New York are in accordance with those of Deam for Indiana, on this point. These observations, together with the fact that there is no obvious indication of a bimodal curve in the variation of the herbarium specimens, suggest to me that *S. neglecta* and *S. uniligulata* are not worthy of separate recognition.

New Brunswick. Dr. Clausen tells me that in western New York plants of the two inflorescence types grow together, and apparently hybridize freely, with no evident reduction in fertility of the hybrids, so that the separation becomes entirely arbitrary. Dr. L. H. Shinners also informs me that in southern Wisconsin the two types not only occur together and intergrade freely, but seem to form a single population. I therefore believe that the two species should be united under the older name, *S. uliginosa* Nutt. Since there is some difference in their range-outlines, and it is possible after close study to place most of the herbarium specimens in one group or the other, I am willing to maintain them as varieties.

To further complicate the problem, it seems that the original of *S. uliginosa* Nutt. is not the plant to which the name is now commonly applied, but rather *S. uniligulata.* Nuttall's name was founded on a plant collected by Pickering, which he described in part as having the "panicle very short, made up of small racemes, which are a little secuned". A Pickering specimen preserved at the Academy of Natural Sciences of Philadelphia bears Nuttall's label and the asterisk with which he denoted his new species, and matches his description very well. Dr. Pennell tells me that, since Pickering's plants were the property of the Academy rather than of Nuttall, the specimen mentioned should be considered the actual type of the species, rather than merely an isotype. The Pickering plant is without doubt the secund phase which has recently been passing as *S. uniligulata,* and is very well matched by a collection by Bayard Long from New Jersey. It furthermore bears Asa Gray's annotation as *Solidago linoides,* the annotation evidently made prior to his reduction of *S. linoides* to a variety of *S. neglecta.* The only discrepancy is that in the original description Nuttall says the plant came from Massachusetts, while the label, in Nuttall's own hand, indicates that it came from New Jersey. Dr. Pennell tells me that Pickering collected both in New Jersey and in Massachusetts, and that Nuttall probably merely made a slip of the pen in one place or the other, so that the matter is of no great importance. I am therefore at a loss to understand Gray's treatment in the Synoptical Flora, where *S. uliginosa* is described as having a non-secund inflorescence, and in the synonymy of *S. neglecta* var.

linoides is given "*S. uliginosa* Nutt. in Jour. Acad. Philad. vii. 101, in part, but not of his own herb. nor descr." As has already been noted, the original description called for a plant with the inflorescence "a little secuned", and matches the apparent type specimen preserved at Philadelphia, a specimen which Gray himself admitted to belong to the entity which has more recently been treated as *S. uniligulata*. I have found no further reference to the supposedly non-secund plant which is presumably in Nuttall's herbarium under the name *S. uliginosa* and which Gray apparently used to typify the name. Regardless of its possible existence and identity, it can scarcely controvert Nuttall's description and type; the name *S. uliginosa* in the strict sense must apply to the secund plant which has passed as *S. uniligulata* (DC.) Porter, and not to the non-secund plant to which it has generally been attached.

Since we are considering the secund and non-secund plants to be varieties of one species, it becomes necessary to find a varietal name for the non-secund plants which have previously passed as *S. uliginosa*. This is provided in *S. uliginosa* var. *peracuta* (Fern.) Friesn., based on *S. humilis* var. *peracuta* Fern. (The name was originally proposed at a time when Professor Fernald, unaware of the earlier *S. humilis* Mill., was using the name *S. humilis* Pursh for the plant which has generally passed as *S. uliginosa* Nutt.) I have examined the type at the Gray Herbarium, and find that it is merely an immature specimen which seems quite characteristic of the non-secund plant which has generally passed as *S. uliginosa*. The typical variety of the species may be known as

S. ULIGINOSA Nutt. var. **uliginosa** Cronquist, var. nov., based on *S. uliginosa* Nutt. Journ. Acad. Philad. **7**: 101. 1834.

The goldenrods which Asa Gray treated as the single species *S. humilis* Pursh have recently been passing in large part as *S. Randii* (Porter) Britt., *S. racemosa* Greene, and *S. decumbens* Greene. *S. racemosa* has been distinguished from the cordilleran *S. decumbens* by having more numerous (10–30 instead of 4–9) cauline leaves below the inflorescence, the leaves bearing axillary fascicles. *Krotkov 7952* from the Bruce Peninsula, Ontario, determined as *S. racemosa* by Fernald, has only 5 cauline leaves

below the inflorescence as in *S. decumbens*, but has axillary fascicles as in *S. racemosa*. Two of the three specimens at the New York Botanical Garden of *Martin 65*, from the type station of *S. racemosa*, in Virginia, lack the axillary fascicles, and a number of specimens from Maine to Virginia lack the fascicles except for some poorly developed ones at the base of the inflorescence, where they are often present in *S. decumbens*. *Turner 6*, from Fort Saskatchewan, Alberta, resembles *S. decumbens* in its relatively broad, blunt, crenate basal leaves, but has 20 leaves below the inflorescence, and a number of other western specimens have more than 10. Four specimens of *Sheldon, s. n.*, from Chaffee County, Colorado, have 10–15 leaves below the inflorescence, the middle and upper ones with axillary fascicles, and would thus key to *S. racemosa*, which has not previously been considered to extend to the western cordillera. It is true that *S. racemosa* generally has more numerous leaves than *S. decumbens*, and more often has axillary fascicles, but these characters are surely not sufficiently constant to warrant specific recognition. It should be noted that the approach of *S. decumbens* to *S. racemosa* is through *S. decumbens* var. *oreophila* (Rydb.) Fern., which Fernald has shown (Rhodora **38:** 202–204. 1936) is only the "lowland" phase of the alpine and subalpine *S. decumbens* sens. strict.

Although *S. decumbens* var. *oreophila* is difficult to differentiate sharply from *S. racemosa*, it is even more closely related to *S. Randii*, and specimens which very probably represent merely the extreme of variation of the one may so closely simulate the other that one is tempted to identify them with it. *Patterson 274*, for example, from Colorado, is in my opinion morphologically more similar to *S. Randii* than to *S. decumbens* var. *oreophila*, but probably represents merely the extreme phase of the latter. Similarly, a number of eastern specimens, especially from the Gaspé area and northern Michigan, seem more nearly like *S. decumbens* var. *oreophila* than either *S. Randii or S. racemosa*. The only reasonably constant differences that I have been able to make out between *S. decumbens* var. *oreophila* and *S. Randii* are that the western plants have more rounded basal leaves, with blunter teeth, than do the eastern ones, but intermediates are plentiful.

S. racemosa also passes into *S. Randii*. I am at a loss to separate them by the differences in prominence of the midrib of the leaves and length of the peduncles, which are given in the manuals. These tendencies are so inconstant that I find it difficult to believe that any botanist, after examining an ample suite of specimens, would seriously propose them as specific characters. The specimens with relatively narrow and on the average more numerous leaves than *S. Randii* do seem to constitute an entity of sorts, however, even though the distinction becomes entirely arbitrary. These specimens also tend to have a narrower inflorescence, with fewer heads and longer peduncles than *S. Randii*, but the differences are only in averages. One of the several specimens at New York of Plantae Exsiccatae Grayanae 5 (distributed as *S. humilis*, but bearing the Gray Herbarium correction label *S. racemosa*) has broader leaves and more compact inflorescence than the others, and would very probably be placed with *S. Randii* were it not associated with and otherwise so similar to more typical specimens of *S. racemosa*. It should also be noted that the inflorescence of *S. decumbens* var. *oreophila*, as treated by Fernald and others, varies from essentially like that of *S. Randii* to essentially like that of *S. racemosa*.

Unless one is to revert to the philosophy that anything worthy of a name should be called a species, I fail to see how the entities here discussed can be considered of more than subspecific importance. I am thus forced to return to the treatment of Asa Gray and use one name to cover the group. As Professor Fernald has shown (Rhodora **10:** 88–91. 1908), the name used by Gray, *S. humilis* Pursh, was founded on another species. The oldest available name of those so far mentioned is *S. Randii* (Porter) Britton, but we must also consider the species which Gray treated in the Synoptical Flora as *S. confertiflora* DC. Only two years before the publication of the Synoptical Flora, he had noted in his survey of the North American Solidago (Proc. Am. Acad. **17:** 191. 1882) that *S. confertiflora* was "probably only another form of *S. humilis*", and with this opinion I wholeheartedly agree. The more ample inflorescence and smaller heads which were attributed to *S. confertiflora* in the Synoptical Flora are seen to be wholly inconstant when a more ample series

of specimens is examined. *S. confertiflora* is, in my opinion, merely the more robust part of the entity which Fernald has recently treated as *S. decumbens* var. *oreophila*. Even *S. confertiflora* DC. is not the oldest available name, however, for it is antedated by *S. confertiflora* Nutt., and is thus illegitimate. Gray listed *S. glutinosa* Nutt. as a synonym of *S. confertiflora* DC.; I have examined an isotype of *S. glutinosa* at Philadelphia, and agree with Gray's identification of it. I am therefore adopting Nuttall's name for the aggregate species under consideration. The majority of the specimens may be identified by means of the following key. No attempt is made to give complete synonymy.

1. Basal leaves tending to be acute or acutish and serrate or crenate-serrate to subentire; east of the cordillera.....subsp. *Randii*.
   2. Heads large, the involucre mostly 6–8 (or 9) mm. high; plants robust, commonly 3–9 dm. tall, with numerous heads in an often branched terminal thyrse which may become loose and paniculiform; sand dunes along Lake Michigan.....var. *Gillmani*.
   2. Heads mostly smaller, the involucre commonly 3–6 mm. high (occasionally larger in var. *racemosa*); plants usually smaller, mostly 1–6 dm. tall, but sometimes fully as robust as var. *Gillmani;* general distribution.
      3. Leaves narrow, the basal mostly 7–20 times as long as wide, tending to be subentire; inflorescence tending to be relatively loose and subracemiform.....var. *racemosa*.
      3. Leaves broader, the basal mostly 3–8 times as long as wide, tending to be sharply toothed; inflorescence tending to be relatively compact and thyrsoid.....var. *Randii*.
1. Basal leaves tending to be rounded or broadly obtuse and crenate to subentire; cordilleran.....subsp. *glutinosa*.
   2. Low, alpine or subalpine plants, about 5–15 cm. tall, with very short and compact inflorescence.....var. *nana*.
   2. Taller plants, growing at lower elevations, mostly 15–50 cm. tall, with more elongate inflorescence.....var. *glutinosa*.

Solidago glutinosa Nutt. subsp. **glutinosa** Cronquist, subsp. nov. *S. glutinosa* Nutt. Trans. Am. Phil. Soc. II. **7:** 328. 1841, sens. strict.

Solidago glutinosa Nutt. subsp. glutinosa Cronquist var. **glutinosa** Cronquist, var. nov. *S. glutinosa* Nutt. Trans. Am. Phil. Soc. II. **7:** 328. 1841, sens strict. *S. multiradiata* Ait. var. *neomexicana* Gray, Proc. Am. Acad. **17:** 191. 1822. *S. neomexicana* Woot. & Standl. Contr. U. S. Nat. Herb. **16:** 182. 1913. *S. oreophila* Rydb. Mem. N. Y. Bot. Gard. **1:** 387. 1900. *S. decumbens* Greene var. *oreophila* Fern. Rhodora **38:** 202. 1936.

Solidago glutinosa Nutt. subsp. glutinosa Cronquist var. **nana** (Gray) Cronquist, comb. nov. *S. humilis* Pursh var. *nana* Gray, Syn. Fl. **1**, pt. 2: 148. 1884. *S. decumbens* Greene, Pitt. **3:** 161. 1897.

Solidago glutinosa Nutt. subsp. **Randii** (Porter) Cronquist, comb. nov. *S. Virgaurea* L. var. *Randii* Porter, Bull. Torrey Club **20:** 208. 1893.

Solidago glutinosa Nutt. subsp. Randii (Porter) Cronquist var. **Randii** (Porter) Cronquist, comb. nov. *S. Virgaurea* L. var. *Randii* Porter, Bull. Torrey Club **20:** 208. 1893. *S. Virgaurea* L. var. *monticola* Porter, Bull. Torrey Club **20:** 209. 1893.

Solidago glutinosa Nutt. subsp. Randii (Porter) Cronquist var. **racemosa** (Greene) Cronquist, comb. nov. *S. racemosa* Greene, Pitt. **3:** 160. 1897.

Solidago glutinosa Nutt. subsp. Randii (Porter) Cronquist var. **Gillmani** (Gray) Cronquist, comb. nov. *S. humilis* Pursh var. *Gillmani* Gray, Proc. Am. Acad. **17:** 191. 1882.

The familiar *Solidago speciosa* Nutt. of the eastern states, a tall plant with numerous usually large leaves, the basal and lower cauline ones commonly persistent and often very large, gives way on the western plains to an ecotype which is now commonly treated as var. *rigidiuscula* T. & G., a smaller plant, with narrower leaves, the basal and lower cauline ones scarcely enlarged and mostly soon deciduous. A third form, the var. *pallida* Porter, occurring in the Black Hills and the eastern part of the Rocky Mountains, retains the small size of var. *rigidiuscula*, but has the basal and lower cauline leaves commonly enlarged and persistent, and more strongly petiolate, the leaves often few and not infrequently a little larger than in var. *rigidiuscula*. A fourth phase, occurring in sandy places from Michigan and northern Indiana to Minnesota, has generally escaped recognition, although it was provided with no less than three specific names by Steele. It should be called

Solidago speciosa Nutt. var. **jejunifolia** (Steele) Cronquist, comb. nov. *S. jejunifolia* Steele, Contr. U. S. Nat. Herb. **16:** 223. 1913. *S. Fisheri* Steele, loc. cit. *S. Chandonnetii* Steele, ibid., p. 222.

The var. *jejunifolia*, as I understand it, is morphologically so similar to the few-leaved forms of var. *pallida* that if their ranges were not disjunct they would probably not be considered taxonomically separable. Dr. L. H. Shinners tells me, however, that var. *jejunifolia* is more or less strongly sweet-scented in the field, a condition which, so far as I am aware, does not obtain in the other varieties. Furthermore, the inflorescence tends to be

more open than in the other varieties, with fewer heads on longer peduncles, so that the extreme form looks very unlike the other varieties in that respect. It is suggested that var. *jejunifolia* may be derived from plants of var. *rigidiuscula* which invaded sandy habitats of this more northern area during the post-glacial xerothermic period.

In his discussion of the varieties of *Solidago rugosa*, Dr. Fernald speaks of a northern group of varieties which are predominantly of damp habitats, and a southern group, predominantly of drier habitats, the two groups differing in certain reasonably constant morphologic features. This coincidence of morphologic, ecologic, and geographic characteristics would seem to justify the recognition of each of the two groups of varieties as a subspecies.

Solidago rugosa Mill. subsp. **rugosa** Cronquist, subsp. nov. *S. rugosa* Mill. Gard. Dict. Ed. 8. No. 25. 1768.

Solidago rugosa Mill. subsp. rugosa Cronquist var. **rugosa** Cronquist, var. nov. *S. rugosa* Mill. Gard. Dict. Ed. 8. No. 25. 1768. *S. altissima* L. var. *rugosa* Torr. Fl. N. Y. **1:** 363. 1843. *S. rugosa* Mill. var. *typica* Fern. Rhodora **38:** 221. 1936.

Solidago rugosa Mill. subsp. **aspera** (Ait.) Cronquist, stat. nov. *S. aspera* Ait. Hort. Kew. **3:** 212. 1789.

Solidago ulmifolia Muhl. var. **ulmifolia** Cronquist, var. nov. *S. ulmifolia* Muhl. ex Willd. Sp. Pl. **3:** 2060. 1803, sens. strict.

Solidago ulmifolia Muhl. var. **Palmeri** Cronquist, var. nov. A var. *ulmifolia* differt caulibus hirsutis pilis patentibus.—Type: *E. J. Palmer 24111*. Shaded sandstone slopes, near top of north side of Magazine Mountain, Logan County, Arkansas, October 14, 1923. Additional specimens: Arkansas: *Palmer 29194*, Hot Springs, Garland County; *Palmer 24180* and *29602*, Magazine Mountain, Logan County; *Demaree 8072*, Bonneville, Logan County; *Demaree 11001*, Hot Springs, Hot Springs National Park, Garland County; *Demaree 19876*, Hector, Pope County; *Demaree 20145*, Ola, Perry County; *Demaree 20498* and *20512*, Cedar Glades, Garland County. Alabama: *Buckley s. n.*, Oct. 1838; *Biltmore Herbarium 15003*, Avondale, Jefferson County.

This remarkably constant variation is as yet known only from Arkansas and Alabama. All of the Arkansas specimens have the stem hairy to the base, but the two Alabama specimens have the lower portion glabrous, suggesting a transition to var. *ulmifolia*. This hairy-stemmed variety of *S. ulmifolia* has sometimes been confused with *S. rugosa*, from which adequate specimens

are at once distinguished by having the stems arise from a branching caudex, as in other forms of *S. ulmifolia,* instead of from long creeping rhizomes, as in *S. rugosa.* From the form of *S. rugosa* that occurs in its area it is further distinguished by its much thinner and scarcely rugose leaves, and longer softer pubescence, as well as by some less constant or less tangible features of habit.

Solidago yadkinensis (Porter) Small differs from *S. Boottii* Hook. chiefly in its slightly larger and broader heads (involucre mostly 3–4.5 mm. high in *S. Boottii,* 4.5–7 mm. in *S. yadkinensis;* rays mostly 2–5 in *S. Boottii,* 4–8 in *S. yadkinensis*). *S. yadkinensis* was originally described as a variety of *S. Boottii,* an interpretation in which I concur, since the differences are not great and many doubtful specimens exist. Unfortunately, Asa Gray's material of his *S. arguta* var. *caroliniana* seems taxonomically identical with *S. yadkinensis,* and his diagnosis further bears out the identity of the two. It therefore becomes necessary to transfer *S. arguta* var. *caroliniana* to *S. Boottii.*

Solidago Boottii Hook. var. **Boottii** Cronquist, var. nov. *S. Boottii* Hook. Comp. Bot. Mag. **1:** 97. 1835, sens. strict.

Solidago Boottii Hook. var. **caroliniana** (Gray) Cronquist, comb. nov. *S. arguta* Ait. var. *caroliniana* Gray, Syn. Fl. **1**, pt. **2:** 155. 1884.

The New York Botanical Garden

Sedum Rosea, not S. roseum.—The boreal Roseroot has long been passing erroneously under the name *Sedum roseum* "(L.)" Scop. but some American botanists seem to have overlooked the very clear discussion of the name by Sprague in Journ. Bot. lxxvii. 126 (1939), his obvious decision at once accepted by Mansfeld in Fedde, Repert. xlvi. 286 (1939) and by Wallace and Wilmott in Bot. Soc. Exch. Cl. Brit. Isl. Rep. xii. 253 (1942).

Briefly the case is this. The generico-specific name *Rosea,* coming from the apothecaries' *Rosea radix* or *Rhodia radix* (because of the fragrance of the bruised root), was formally taken up as of Rivinius in Ruppius, Fl. Jen. 80 (1718) and was used as a definite generic name by Kramer, Tent. Bot. 19 (1744). Linnaeus, Crit. Bot. 41 (1737) and Fl. Lapp. 304 (1737) replaced

"*Rosea*. Rupp. jen. I. p. 80" by *Rhodiola* and in Sp. Pl. 1035 (1753), adopting binomial nomenclature, called the plant *Rhodiola Rosea*. When the combination *Sedum roseum* was published by Scopoli (1772), the latter author did not grasp the fact that "*Rosea*" was an old generic name. Sprague argues that, Scopoli having mistaken it for an adjective, the plant "may, however, be cited as *Sedum Rosea* (L.) Scop., since the gender of a specific epithet may be corrected without changing the authority for the binary combination concerned." Sprague, it would seem, was too anxious to give Scopoli the credit. Since the basic *Rosea* was a noun in apposition, while *roseum* was an adjective, they can hardly be considered as the same word. The combination, I think, should stand as *Sedum Rosea* (L.) Scop. ex Sprague, l. c.

This binomial presents an interesting case for those self-styled "progressives" and standardizers (who are never progressive) who would destroy the clues to origins of specific names by uniformly decapitalizing them all. If they decapitalize *Rosea* and make it look like a feminine adjective (which it is not) they appear uninformed as to the gender of *Sedum;* if they insist on *Sedum roseum* they wholly misrepresent the truth. As L. H. Bailey, always looked upon as most truly progressive, well says: "A binomial is more than a name for a plant. It has history and significance. If decapitalization obscures this significance then it should be applied with caution. One who disregards the meanings is not sensitive to words, and he may deprive nomenclature of one of its interesting assets."—Bailey, Gent. Herb. vii. 171 (1946). He further says: "There is . . . no sense in [decapitalized] *Polygonum convolvulus*, *Daphne mezereum*, *Convolvulus soldanella*, *Acacia julibrissin*, *Jatropha manihot*, *Brassica pe-tsui*, *Phaseolus mungo*, *Psoralea onobrychis*, *Zea mays*" (Bailey, p. 172). All this was clearly understood by Linnaeus, Lamarck, Willdenow, the DeCandolles, the Hookers, Eichler, Kunth, Torrey, Gray, Engler and countless others (even Britton, Rydberg, and Small, in many ways radical rather than progressive), who have initiated real progress in the science, although, before doing so, they did not announce themselves as "progressives". They were truly progressive because their work demonstrated them to be so and because they had real respect for established

good usage and understanding of words. One is not a progressive merely by adopting that misused term as a mask for intellectual inertia or lack of linguistic insight, any more than the self-appointed candidate for political office is a statesman simply by so labelling himself. Some of the younger "progressives" who adopt that unearned tag and who often remind one of George W. Cable's creole boy who was called Crabiche because he made progress backwardly, would do well, if they are not superior to being instructed, to read and digest the whole discussion on "*Species-names with capital letters*" (Bailey, l. c. 168–174) by the always progressive dean of us all.—M. L. Fernald.

THE OCCURRENCE OF ELEOCHARIS NITIDA IN THE LAKE SUPERIOR REGION

Olga Lakela

Eleocharis nitida Fernald, hitherto known from Newfoundland, Nova Scotia, Quebec and northern New Hampshire, appears to have a wide range in the Lake Superior region. In the interior it was first discovered in Superior, Wisconsin, by Dr. John W. Thomson, Jr., who sent a specimen to the writer. According to information on the label, the plants were growing in a wet area south of 920 N. 22nd St. "Cultivated in 1936," must refer to the site of the colony.

After this discovery, one could hardly suppress hopes of finding the species on the Duluth side of the extensive waterfront. However, in Minnesota, its occurrence was first known to the late Dr. F. K. Butters who, with Dr. Ernst Abbe, without knowledge of the Wisconsin plants, collected the species in August, 1944, near Tofte, Cook Co. Thus, the two known sites were some hundred miles apart. The occurrence of the plant somewhere between the terminal points of its known range seemed probable.

On July 13, 1946, the writer made an effort to study *E. nitida* in the known colony near Tofte. As the North Shore Highway 61 enters Cook Co., the upper side of the road becomes springy and there are long stretches of the ditch-bottom under shallow water or, in places, deep water with marshy aspect. Frequent

stops were made to observe such areas from the county line to Tofte, and *Eleocharis nitida* was found in several localities. It seems to thrive best in wet soil or in shallow water in more or less bare areas. It is absent from deeper marshy spots under dense vegetation. Collection no. 6406 was made from a colony growing in a springy area on Highway 61, in Cook Co., about 2 mi. from the Lake Co. line. Associated with it grow various species of *Juncus*, *Scirpus* and *Carex*. Of the last named, herewith are mentioned species least frequently encountered in Minnesota: namely, *C. livida* (Wahlenb.) Willd., observed in two colonies near Schroeder; *C. Michauxiana* Boeckl., a single colony in the same locality. More frequent were *C. Vahlii* Schkuhr, and *C. flava* L.

At least one locality in Lake Co. was found favorable for *Eleocharis nitida*, a springy area near the southwest end of Pork Bay bridge. The fine clayey loam at the site of the colony was pitted by borings of *Philohela minor* (Gmelin). Collection no. 6396 was made from the colony established in bare spots of the ditch-bottom.

The North Shore area in St. Louis Co. has been collected rather thoroughly by the writer during the past ten years. However, a few localities needed re-checking, especially the sides of Highway 61, about one mile from Lake Co. line. Thus, on July 21, 1946, in a springy spot of the roadside, about 17 miles from Duluth, a colony of *E. nitida* was located. Collection nos. 6520 and 6521 were made at this area. The highway from this point passes over a wooded hill and Lake Superior shore lies some hundred feet below. Toward the southeast along the Stony Point Shore Drive, the lake shore is low, with shallow marshy pools subjected to wave action during high winds. Two small creeks emerge from a thicket, to enter into the lake. In the bare soil of the creek-mouths, among boulders, and in the moss-lined shore pools *E. nitida* occurs with *E. acicularis*. This Lake Superior shore station is less than one-half mile across the rising land from the colony on Highway 61. Collections nos. 6524 and 6798 were made at this site. Thus, its occurrence in several localities indicates a wide interior distribution.

Duluth State Teachers College

Fruits of Trees.—We have received for review a 50-page pamphlet from a specialist on trees who, perhaps, is not familiar with the standards expected by those who write reviews for Rhodora; for its use or failure correctly to use commas, hyphens and other simple marks of punctuation indicate that it is not Latin alone which is too much ignored in American education. The pamphlet is "Fruit Key to Northeastern Trees *By William M. Harlow, PH.D. Associate Professor of Wood Technology New York State College of Forestry Syracuse, New York*".[1] The very attractive illustrations are taken from an earlier volume by the author and, made from photographs, are gratifyingly accurate ("the camera tells the truth"). The text is intended for students of forestry, who seem to be assumed to need very elementary instruction, so that nontechnical words are strained after and even very simple ones defined. Throughout the pamphlet the rigid exclusion of leaves and other very conspicuous organs and the use of fruits alone lead to the separation of obviously different trees by less evident characters. For instance, Tulip-tree or "Yellowpoplar *Liriodendron*" is easily distinguished by habit, foliage and flower from "Balsam Fir *Abies*" but here, through the permutations of the Key they come side-by-side and can be told apart only by their fruit. Again, the genera *Tsuga* and *Picea* (both evergreen, so that the characteristic foliage is present with the cones) are strikingly different: *Tsuga* with the blunt and strongly flattened leaves submembranaceous, and with a slender petiole, scattered and turned into a flat spray; *Picea* with somewhat pungent, 4-angled firm leaves spirally arranged and not forming a flat spray, jointed at base to the prominent and persistent pulvini. Nevertheless, here is the only separation given for these very definite genera (p. 22):

"19. Cones purplish at maturity [with footnote explaining that "They lose this color during the winter", a correct statement, for they then become brown], scales with evident ragged edges—Black Spruce *Picea mariana*

. . . .

19. Cones brownish at maturity, scale edges smooth or very slightly ragged", this section containing two other species of *Picea* and the one of *Tsuga*, separated by their cones only.

Standardized Plant Names has evidently been the standard for "common" names. Whether even that presumptuous model had so many inconsistencies I have not attempted to check. Here we find (p. 18) "Eastern Redcedar or Redcedar Juniper *Juniperus virginiana*", followed by "Southern or Atlantic whitecedar *Chamaecyparis thyoides*"; on p. 22 and 23 "Black Spruce" followed by "white spruce"; on p. 25 "Red Maple" and "Norway maple"; on p. 26 the almost unequaled "Treeofheaven or Chinese-sumac"; on p. 28 "American elm", "Cork or Rock Elm" and "Slippery elm"; and on p. 29 "Papermulberry", "Red Mulberry" and "white Mulberry".

These items are sufficient to indicate that, either foresters are relatively naïve and not too critical (and if traits of accuracy or inaccuracy carry over into different fields their work should be carefully watched), or that the author would have done well to hand his manuscript to a pupil in the grammar-school (if any of them are now taught the simple rudiments of grammar and rhetoric) for editing before it went to the printer.—M. L. F.

[1]Published by the author, 234 Kensington Pl., Syracuse, N. Y.; single copies 50c; 10 or more copies less 20%.

Centaurea maculosa in Illinois.—Within the past year this species has been reported from Michigan by E. E. Sherff[1] and from Indiana by E. D. Hull[2], hence its recent detection in two of the northern counties of Illinois is not at all surprising. The discovery of the spotted knapweed in 1945, by Dr. E. W. Fell of Rockford, brings the total number of centaureas now known in this state to seven, the others being *C. calcitrapa* L., *C. cyanus* L., *C. jacea* L., *C. nigra* L., *C. solstitialis* L. and *C. vochinensis* Bernh. The following specimens of *C. maculosa* L. are in the herbarium of the Illinois State Museum at Springfield, and through the courtesy of the curator, Professor Geo. D. Fuller, duplicates have been deposited in the herbarium of the University of Illinois. The collection-data are as follows:

Illinois: roadside, generally scattered over the county, three miles south of Rockford, Winnebago County, July 30, 1945, *E. W. Fell* No. 45485; roadside, three miles southeast of Cherry Valley, September 27, 1945, *E. W. Fell*, No. 45743.—George Neville Jones, University of Illinois.

[1] Rhodora **48**: 98 (1946).
[2] Op. cit. 391.

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